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Measurement of intellectual capital components through activity reports of companies

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Abstract

Purpose of the study is to measure the intellectual capital through annual activity reports of banks that operate in Turkey and to determine whether the criteria of human capital, structural capital, and customer capital, which are the components of intellectual capital, are disclosed at different levels according to bank types or not. Method of the study is the content analysis. The sample group of the study is comprised of 3 banks that operate in 3 different sectors (public, private, participation bank). Measurements were conducted by ranking the criteria of intellectual capital components in activity reports of banks between 2007 and 2011. In accordance with findings, Turkish banks primarily disclosed the customer capital, which is followed by structural capital and then human capital. Considering the sectoral differences, it was determined that respectively, bank with private capital, bank with participation capital and the public bank gave more importance to the intellectual capital.

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1. Introduction

The intangible elements or invisible assets, which cause the gradual extension of the difference between the market values and book values of companies and create values for their companies, are called the new wealth of companies in today's information society (Stewart, 1997, p.213). Neither the financial assets such as inflated bank accounts, nor physical assets such as large landed properties and numerous buildings reflect the value of the company. Reflecting a considerable percentage of the market value of companies, assets are intangible intellectual components (Dewhurst and Navarro, 2004, p.322) and it is constantly discussed that it is required to measure these components objectively, disclose in activity reports of companies to be presented to related interest groups (Yıldız, 2010a, p.34), display them in financial statements (Çıkrıkçı and Daştan, 2002, p.28; Kutlu, 2009, p.253) or present as a separate intellectual capital statement (Önce, 1999, p.82).

This study was designed since these invisible assets, called intellectual capital, are not presented in financial statements of companies in Turkey such as balance sheet or activity report. Examining the activity reports of 3 banks in Turkey (private, public and participation), the importance attached by banks to human capital, structural capital, and customer capital, which are components of the intellectual capital of banks, was compared.

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2. Theoretical Framework

2.1. Definition and components of the intellectual capital

The intellectual capital is defined as intangible critical assets, which cannot precisely be disclosed in the financial statement of a company but reflect the real value of the company and are based on knowledge (Yıldız, 2010b, p.31). According to Roos et al. (1998), considering the modern accounting techniques, the intellectual capital includes the processes that are not disclosed in the financial statement and intangible assets (copyright, patent, trademark). According to Sullivan (1999), on the other hand, the intellectual capital is information that could be converted into profit.

There is no universal classification regarding the components of the intellectual capital; however, according to Sveiby (2001), intellectual capital has 3 components as human capital, internal structure and external structure. According to Roos and Roos (1997), on the other hand, the intellectual capital is consisted of components such as human capital, structural capital and customer capital. *Human capital* is the personal information stock of the company that is represented by employees and the source of invention and strategic innovation (Pablos, 2002, p.288) and is comprised of elements such as the education, skill, experience, business knowledge, creativity, and satisfaction of employees (Guthrie, 2001; Seetharaman et al. 2004; Yıldız, 2010a). *Structural capital* is the whole organisational capabilities, which are owned by the business and enables the company to meet the market requirements (Pirtini, 2004, p.33) and involves elements such as culture, intellectual property, system and processes that are kept within the enterprise when the employees go home in the evening (Huang and Hsueh, 2007, p.266; Çelik and Perçin, 2000, p.113). *Customer capital* is information, which is grounded within market channels, which are developed by a company through business relations, and customer relations (Bontis et al, 2000, p.88) and involves elements such as brands, customers, customer satisfaction, and relations with customers (Guthrie, 2001, p.35; Çikrikçi and Daştan, 2002).

2.2. Measurement of the intellectual capital

It is not possible to control and manage immeasurable things. Increasing methods that try to measure the intellectual capital presents the importance of the intellectual capital. Making intellectual assets visible has some advantages. These advantages include increasing the stock value, providing the intellectual assets as guarantee, its existence as a bargain element during mergers and determining weakness and strength in the face of rivals (Acar and Dağlar, 2005, p.33).

Each of methods that measure the intellectual capital have various deficiencies and they could be classified under two groups in general. They include methods such as the “market value, book value rate, Tobin’s q rate, calculated intangible value” which measure the intellectual capital as a whole, and methods such as the “Skandia navigator, technology broker, value added intellectual coefficient, intangible assets monitor” which measure the intellectual capital on the basis of its components (Stewart, 1997; Çelikkol, 2008; Çetin, 2005; Yıldız, 2010b, p.103).

There have been also studies that measure the intellectual capital by considering activity reports of companies (Arslan, 2005; Flöstrand, 2006; Striukova et al., 2008; Xiao, 2008; Campbell and Rahman, 2010). Since this method does not include a title of intellectual capital report within the annual activity reports of companies, the measurement is performed by rating the disclosures made to criteria of human capital, structural capital and customer capital, which are the components of the intellectual capital.

3. Methodology

3.1. The purpose and scope of the study

Purpose of the study is to measure the intellectual capital through annual activity reports of banks that operate in Turkey and to determine whether the criteria of human capital, structural capital, and customer capital, which are the components of intellectual capital, are disclosed at different levels according to bank types or not. The sample group of the study is comprised of 3 banks that operate in 3 different sectors (public, private, participation bank).

3.2. The type of the study and indicators used in study

Method of the study is the content analysis. Data collection instrument is the annual activity reports of banks. Measurements were conducted by ranking the criteria of intellectual capital components in activity reports of banks between 2007 and 2011. While the human capital was measured with 5 main criteria (employees, training and development, education, work-related knowledge, and innovation), structural capital was measured with 6 main criteria (intellectual properties, corporate culture, management philosophy, management and technological process, information and networking system, and infrastructure) and customer capital was measured with 6 main criteria (financial relationships, brands, customers, distribution channel, business partnering, and corporate reputation); and a total of 124 sub-criteria were analysed. The indicators that were used in the study were adapted from the studies of Campbell and Rahman (2010) and Striukova et al. (2008).

4. Findings

4.1. Findings regarding banks

In order to measure the intellectual capitals of banks in Turkey, one bank was selected for each sector (private, public and participation bank). Number of branch of banks was taken into consideration as the selection criteria and the bank with the greatest number of branch from each activity field was included in the analysis.

4.2. Findings regarding the private bank

Table 1 illustrates the overall examination. It was determined that the private bank gives importance primarily to the customer capital (42%) with 2275 disclosures, and then to the structural capital (37%) with 2021 disclosures and finally to the human capital (21%) with 1130 disclosures. Furthermore, an increase was observed on disclosures of the components by years.

Table 1. Disclosures of the Components of Intellectual Capital By Years (Private Bank)

IC COMPONENTS	2007	2008	2009	2010	2011	TOTAL	%
STRUCTURAL CAPITAL	366	332	386	449	488	2021	37
CUSTOMER CAPITAL	380	385	455	518	537	2275	42
HUMAN CAPITAL	189	188	231	275	247	1130	21
TOTAL	935	905	1072	1242	1272	5426	100

Table 2 illustrates numbers of disclosures made to the components of the intellectual capital within the 5-year activity reports of the private bank. It was revealed that the most important category for the *structural capital* is the management and technological processes; the most important category for the *customer capital* is the distribution channels and the most important category for the *human capital* is the training and development. It was also found out that the most important criteria in the category of management and technological processes are system and

processes; the most important criteria in the category of distribution channels are sale and distribution; and the most important criteria in the category of training and development are training and development.

Table 2. Distribution of the Criteria By Years (Private Bank)

COMPONENTS OF INTELLECTUAL CAPITAL (IC)	2007	2008	2009	2010	2011
STRUCTURAL CAPITAL	366	332	386	449	488
1. Intellectual Properties	20	19	30	36	43
2. Corporate Culture	18	18	23	24	26
3. Management Philosophy	79	91	71	104	137
4. Management and Technological Process	186	149	172	184	171
5. Information and Networking System	49	46	75	83	95
6. Infrastructure	14	9	15	18	16
CUSTOMER CAPITAL	380	385	455	518	537
7. Financial Relationships	0	0	0	0	0
8. Brands	38	36	64	90	82
9. Customers	126	125	146	168	187
10. Distribution Channel	175	191	210	226	225
11. Business Partnering	39	33	33	34	42
12. Corporate Reputation	2	0	2	0	1
HUMAN CAPITAL	189	188	231	275	247
13. Employees	68	51	59	76	78
14. Training and Development	43	66	85	85	73
15. Education	20	9	5	5	4
16. Work Related Knowledge	51	46	66	76	69
17. Innovation	7	16	16	33	23

4.3. Findings regarding the public bank

The overall examination is showed in Table 3. It was determined that the public bank gives importance primarily to the structural capital (41%) with 1093 disclosures, and then to the customer capital (38%) with 1025 disclosures and finally to the human capital (21%) with 570 disclosures. Additionally, disclosures of the components increased by years.

Table 3. Disclosures of the Components of Intellectual Capital By Years (Public Bank)

IC COMPONENTS	2007	2008	2009	2010	2011	TOTAL	%
STRUCTURAL CAPITAL	173	205	212	245	258	1093	41
CUSTOMER CAPITAL	113	138	194	335	245	1025	38
HUMAN CAPITAL	71	96	127	146	130	570	21
TOTAL	357	439	533	746	633	2688	100

Table 4 illustrates numbers of disclosures made to the components of the intellectual capital within the 5-year activity reports of the public bank. It was appeared that regarding the bank, the most important category for the *structural capital* is the management and technological processes; the most important category for the *customer capital* is the distribution channels and the most important category for the *human capital* is the training and development. It was also revealed that the most important criteria in the category of management and technological processes are technology, quality and performance evaluation; the most important criteria in the category of distribution channels are opening new branches and contact offices; and the most important criteria in the category of training and development are training and development.

Table 4. Distribution of the Criteria By Years (Public Bank)

COMPONENTS OF INTELLECTUAL CAPITAL (IC)	2007	2008	2009	2010	2011
STRUCTURAL CAPITAL	173	205	212	245	258
1. Intellectual Properties	6	5	5	5	12
2. Corporate Culture	18	18	20	13	27
3. Management Philosophy	45	41	50	57	59
4. Management and Technological Process	64	90	80	104	103
5. Information and Networking System	24	38	41	50	43
6. Infrastructure	16	13	16	16	14
CUSTOMER CAPITAL	113	138	194	335	245
7. Financial Relationships	0	0	0	0	0
8. Brands	22	23	25	23	23
9. Customers	48	60	82	90	107
10. Distribution Channel	29	43	72	215	97
11. Business Partnering	11	5	11	6	12
12. Corporate Reputation	3	7	4	1	6
HUMAN CAPITAL	71	96	127	146	130
13. Employees	9	15	23	21	24
14. Training and Development	23	34	38	55	41
15. Education	24	27	25	29	21
16. Work Related Knowledge	2	4	31	37	32
17. Innovation	13	16	10	4	12

4.4. Findings regarding the participation bank

Table 5 illustrates the overall examination. It was revealed that the participation bank gives importance primarily to the customer capital (65%) with 2081 disclosures, and then to the structural capital (27%) with 876 disclosures and finally to the human capital (8%) with 263 disclosures. Additionally, an increase was observed on disclosures of the components by years.

Table 5. Disclosures of the Components of Intellectual Capital By Years (Participation Bank)

IC COMPONENTS	2007	2008	2009	2010	2011	TOTAL	%
STRUCTURAL CAPITAL	115	121	218	216	206	876	27
CUSTOMER CAPITAL	287	326	448	526	494	2081	65
HUMAN CAPITAL	49	41	53	65	55	263	8
TOTAL	451	488	719	807	755	3220	100

Table 6 illustrates numbers of disclosures made to the components of the intellectual capital within the 5-year activity reports of the participation bank. It was revealed that the most important criteria for the *structural capital* are the management and technological processes; the most important criteria for the *customer capital* are the distribution channels, and the most important criteria for the *human capital* are the employees. It was also revealed that the most important criteria within the category of management and technological processes are quality and system; the most important criteria within the category of distribution channels are opening new branches, sale and distribution; and the most important criteria within the category of employees are employees and employee morale.

Table 6. Distribution of the Criteria By Years (Participation Bank)

COMPONENTS OF INTELLECTUAL CAPITAL (IC)	2007	2008	2009	2010	2011
STRUCTURAL CAPITAL	115	121	218	216	206
1. Intellectual Properties	7	5	9	9	8
2. Corporate Culture	28	34	42	41	43
3. Management Philosophy	18	15	56	49	47
4. Management and Technological Process	41	48	59	53	57
5. Information and Networking System	18	13	46	48	37
6. Infrastructure	3	6	6	16	14
CUSTOMER CAPITAL	287	326	448	526	494
7. Financial Relationships	0	0	0	0	0
8. Brands	29	13	19	29	31
9. Customers	8	10	89	120	106
10. Distribution Channel	224	265	303	331	317
11. Business Partnering	20	31	28	30	30
12. Corporate Reputation	6	7	9	16	10
HUMAN CAPITAL	49	41	53	65	55
13. Employees	5	2	24	27	24
14. Training and Development	8	9	6	9	8
15. Education	12	17	12	8	8
16. Work Related Knowledge	7	6	5	7	3
17. Innovation	17	7	6	14	12

5. Conclusion

Even though there are various approaches regarding the measurement of the intellectual capital in literature, each approach has some deficiencies. Then, could the use of “activity reports of companies” give more realistic results in measuring the intellectual capital with its components? Since the measurement of the intellectual capital via activity reports is perceived as disclosure of the importance the companies give to the intellectual capital in a sense, it is thought that this measurement gives more realistic results.

This study was conducted by measuring the intellectual capital criteria within the annual activity reports that are published between 2007 and 2011 by one private bank, one public bank, and one participation bank in Turkey.

Considering the results in general, the totally 11334 criteria of intellectual capital were disclosed within the annual activity reports of 3 banks. Of these criteria disclosed, 5381 (47%) were related to *the customer capital*, 3990 (35%) were about *the structural capital* and 1963 (18%) were related to *the human capital*. Similarly, among the criteria of the intellectual capital, 5426 (48%) were disclosed by private bank, 3220 (28%) were disclosed by participation bank and 2688 (24%) were disclosed by public bank.

Consequently, it was revealed that among the intellectual capital components, Turkish banks primarily attach importance to the customer capital, and then structural capital and finally human capital. This result shows a parallelism with the study results of Flöstrand (2006) and Arslan (2005). Besides, considering the sectoral differences, it was determined that criteria of the intellectual capital is placed importance primarily by bank with private capital, then by bank with participation capital and finally by the public bank and they disclosed this situation in their activity reports.

While the most frequently disclosed category is “training and development” in human capital, it is “management and technological processes” in structural capital and “distribution channels” in customer capital. Furthermore, it is observed that banks have attached a greater importance to the intellectual capital criteria in recent years. In conclusion, it is a natural consequence for banks to attach a greater importance to the customer capital in parallel with the customer-oriented transformation that has been experienced by them in recent years. It is recommended for banks to give a greater importance to other intellectual capital criteria in their activity reports.

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